

CLAIMS

What is claimed is:

- 1 1. A method comprising:
 - 2 receiving a language-based representation of a hardware design;
 - 3 automatically generating a plurality of design verification checks for use in
 - 4 connection with model checking, the plurality of design verification checks based upon
 - 5 application of a set of one or more predetermined properties to the language-based
 - 6 representation of the hardware design;
 - 7 verifying the hardware design, as implemented according to the language-based
 - 8 representation, against intended behavior, represented by the set of one or more
 - 9 predetermined properties, by determining whether one or more of the plurality of design
 - 10 verification checks are violated by the hardware design; and
 - 11 reporting results of said verifying.
- 1 2. The method of claim 1, wherein the language-based representation of the hardware design
2 comprises Register Transfer Language (RTL) source code.
- 1 3. The method of claim 2, wherein the one or more predetermined properties include a block
2 enable property that relates to whether conditions enabling execution of a particular block of
- 3 code in the RTL source code will never be satisfied.
- 1 4. The method of claim 2, wherein the one or more predetermined properties include an
2 assignment execution property that relates to checking whether each logical value can be
- 3 assigned to a variable in the RTL source code through assignment operations appearing in the
- 4 RTL source code.

- 1 5. The method of claim 2, wherein the one or more predetermined properties include a
- 2 conflicting assignments property that relates to checking whether it is possible for a wire in
- 3 the hardware design to be driven by multiple conflicting drivers.

- 1 6. The method of claim 2, wherein the one or more predetermined properties include a constant
- 2 value memory element property that relates to determining whether a memory element in the
- 3 hardware design will always hold a constant value.

- 1 7. The method of claim 2, wherein the one or more predetermined properties include a constant
- 2 value variable property that relates to determining whether a variable in the RTL source code
- 3 will always hold a constant value.